

**ABSTRACT****AUTOMATIC GAIN CONTROL SYSTEM FOR MULTI-USER DIGITAL OFDM  
TRANSMISSION SYSTEMS OVER THE ELECTRIC NETWORK.**

The system includes a plurality of user kits and a head-end kit in bi-directional communication over the electricity network. Its essential characteristics are: carrier by carrier treatment of transmission and reception signals and control of transmission power in each kit. The system makes it possible to reach the maximum the number of users, it maximizes transmission capacity, it admits signals coming from users situated at varying distances both near and far, it avoids the production of overflows, it introduces the maximum average power for the range available to the communication and it minimizes the number of bits necessary for the analog/digital conversion in reception.